





Issaquah Creek Streambank Enhancement

Stream ■  
(X,Y) 408136.111389, 62556.1551674 ■

Existing & Proposed Conditions:

Along the right streambank at this location is a vertical streambank 10-12 feet high and approximately 150 feet long. The vegetation extending landward from the top-of-slope is primarily grass and weeds. In contrast to a number of other possible project locations with somewhat similar vertical banks, the active stream flow here has moved away from the toe, leaving a sandy, gravelly bar. As such, the proposed project treatment is also somewhat different.

Rather than re-sloping the banks at this location, it is instead proposed that a myriad of willow and cottonwood stakes and/or rooted bare root stock be densely planted across the entire gravel bar area. A few willow seedlings have already begun to grow there. If this vegetation can become well-established before the stream channel attempts to migrate through this area again, it will facilitate continued aggradation and flood plain formation across the bar area, keeping erosive flows away from the toe of the vertical bank. Additional planting along the top of the bank would also be beneficial by increasing the complexity and edge habitat features of the riparian plant community. This is a relatively low-cost



● Project location

project suitable for implementation by volunteers with hand tools, involving only relatively straightforward permitting issues.

These enhancements have an estimated construction cost of \$10,500. The estimate worksheet can be found in Appendix C.



High bank along Issaquah Creek

Issaquah Creek Streambank Enhancement

Stream ■  
(X,Y) 407407.543267, 63100.2003176 ■

Existing & Proposed Conditions:

Along the east bank of Issaquah Creek, between the mouth and just upstream of the footbridge, seven relatively small “patch” areas between the existing trail and the creek have been identified that would benefit from some combination of invasive plant removal, revegetation with native plant species, trail realignment, picnic area creation, and in-stream log structure placement. Because each of these areas would, by itself, constitute a fairly small project, they have been grouped together as a single project for consideration. Much of this work could be implemented by volunteers as public improvement projects.

- i. At the lowermost section, about thirty feet long, the trail is about 12 feet from the creek with no vegetation growing between the creek and trail except reed canarygrass. It is proposed that this area be revegetated without blocking visual access to the creek by using somewhat tall, spindly native vegetation that can be seen through or past.
- ii. At the second section, the trail is only 3-5 feet from the creek for a length of approximately 75 feet. The trail should be consolidated with an already-existing alternate alignment that is approximately 30 feet from the creek by blocking and revegetating the abandoned section, retaining a dead-end trail section sufficient to provide a viewpoint.
- iii. An approximately 35-foot-diameter reed canarygrass meadow lies near the trail between the creek and the trail with an additional approximately 30 feet of well-functioning, vegetated buffer remaining between the meadow and the creek. It is proposed to mow the reed canarygrass in the meadow, which should kill or greatly reduce it over time, and provide a picnic table. As a result, a small, secluded, inviting clearing would be created in the forest for picnicking, reading, or contemplation.



Streambank of Issaquah Creek along an unpaved path



● Project location

- iv. A 100-foot-long by 65-foot-wide strip along the creek includes a 12-inch grand fir, a grand fir snag, and a few willows but is mostly reed canarygrass with a few blackberries. Proposed project activities would include mowing and otherwise controlling the reed canarygrass and blackberries and replanting the area with native vegetation. Access for placing some log structures in the creek channel is also available at this location, and a picnicking spot could also be provided with the addition of a picnic table.
- v. Proceeding upstream, another 40-foot-long by 40-foot-wide strip along the creek is also mostly reed canarygrass with a few blackberries. As at other locales, primary project activities would entail mowing and otherwise controlling the reed canarygrass and blackberries and replanting the area with native vegetation.
- vi. A 40-foot-long by 25-foot-wide strip along the creek immediately downstream of the footbridge is also mostly reed canarygrass with a few blackberries. As for v., above, mowing and otherwise controlling the reed canarygrass and blackberries and replanting native vegetation is proposed.
- vii. Along the north side of Issaquah Creek upstream of the footbridge, very little functioning stream buffer exists between the trail and the creek. Without detracting from the functionality and appearance of the trail, it could be readily moved at low cost to provide a larger stream buffer. The existing trail is essentially unsurfaced, and plenty of open field area exists to the north to accommodate this move. After the trail is moved, the intervening new buffer area between the trail and creek would be replanted with native riparian vegetation.

These enhancements have an estimated construction cost of \$47,700. The estimate worksheet can be found in Appendix C.

Issaquah Creek Streambank Enhancement

Stream ■  
(X,Y) 408117.063856, 62434.7271471 ■

Existing & Proposed Conditions:

Along the left streambank at this location is a vertical streambank 10-12 feet high and approximately 150 feet long, similar to those described at other locations along the creek in that respect. The vegetation extending landward from the top-of-slope is primarily grass and weeds. In contrast to previous possible project locations with somewhat similar vertical banks, however, groundcover vegetation growing along the lower banks indicates that the bank may be more stable with less active ongoing erosion. Though water still flows past the toe of this bank, small gravel bars have formed and woody debris has accumulated on them.

As such, the proposed treatment for this vertical bank section is somewhat different than for some of the other vertical-bank sections. As proposed, this project entails densely planting the lower banks, primarily, with seedling alders rather than re-sloping them. Invasive vegetation removal and native revegetation above the top-of-bank would also occur. This project would lend itself to implementation by volunteers as a public improvement project



● Project location



Revegetation would stabilize the existing streambank



Tibbetts Creek Tributary Enhancement

Stream ■  
(X,Y) 407143.258752, 62212.1091097 ■

Existing & Proposed Conditions:

Tibbetts Creek tributary #0170 flows in a straight, ditch-like channel south of the park’s offices and maintenance buildings between SE 56th Street and the park entrance road. The tributary joins Tibbetts Creek on the west (downstream) side of the entrance road at the point where Tibbetts turns to the west, away from the road. On parks property, the tributary flows in a straight, excavated channel that dates from the period when the area was cleared and drained for farming early in the last century. Several similar and parallel excavated drainages occur in the park to the northeast. The tributary is low-gradient with a silty channel. It presently lacks woody materials in and along it which would provide habitat cover. Vegetation along its lower section on-site is wanting, consisting almost exclusively of invasive and non-native reed canarygrass and Himalayan blackberries. Farther upstream, on-site vegetation improves, including maturing conifer trees, salm-onberry, snowberry, sword fern, and lady fern, however invasive English ivy is also present.



● Project location



Existing Tibbetts Creek tributary #0170

Project recommendations for this area focus on the removal of invasives including Himalayan blackberries, reed canarygrass, and English ivy from along the banks and their replacement with a diverse assemblage of native plant species. Some areas appear to have been mowed in the past, and this could be done again but would have to be followed up with physical uprooting and (possibly) judicious herbicide use on re-growth. Banks would be replanted similarly to the existing, well-vegetated central section, but with increased diversity of native plants. Widening of the flood plain could also be done, and would be beneficial, but would involve shifting the trail. Large woody materials could also be placed within the channel as habitat features, but at a lower priority than for similar actions recommended for Tibbetts and Issaquah Creeks.

Entry Road Relocation

Stream, Wetland ■  
(X,Y) 407127.782632, 62145.4427455 ■

Existing & Proposed Conditions:

The existing park entry road is adjacent to the east side of Tibbetts Creek and limits the width of the stream buffer in this area. This project would relocate the park entry road further to the east in an area of mostly existing lawn to create a larger and more effective stream buffer along Tibbetts Creek.

The width of the stream buffer and exact location of the new road would need to allow for an enhanced wetland buffer along the wetland area south of Tibbetts tributary #0170, as described in Project A16. Interpretive signage could be installed along the trail in this area explaining the reason for relocating the road as an additional feature of the Tibbetts Creek Greenway restoration work. Additional floodplain along Tibbetts Creek could also be created as part of this stream buffer restoration and could be combined with Projects A1 and C9.



● Project location map



Existing entry road precludes buffering to Tibbetts Creek nearby

Issaquah Creek Streambank Enhancement

Stream ■  
(X,Y) 407982.540657, 62716.8687238 ■

Existing & Proposed Conditions:

Centrally-located along the portion of Issaquah Creek on-site is a relatively straight and narrow channel section confined by dense blackberry thickets on both sides. This section has comparatively low levels of woody debris and, unlike the channel sections immediately upstream and downstream of it, has relatively little bank erosion.



Existing streambank

The project envisioned for this section would, primarily, provide for the placement of a number of habitat structures in the stream channel, composed for the most part of logs with attached root wads. The equipment access needed to place these structures would be through the adjoining dense blackberry thickets. Blackberry removal and native revegetation would occur along equipment access routes at a bare minimum but would more likely also occur over a somewhat or considerably larger area as well.



● Project location

The blackberry thickets in this area are too dense to consider removing by hand, and it is envisioned that initial removal of the thickets, at least, would be done by heavy equipment. Ongoing, persistent hand removal of regrowth would likely be necessary to keep project areas relatively free from blackberries over the long term.



Woody debris would enhance wildlife habitat. Pictured is a mink near the location of this project.



Tibbetts Creek Trail Enhancement

Wetland, Stream, Lakeshore, Recreation ■  
(X,Y) 406662.308553, 62212.1091097 ■

Existing & Proposed Conditions:

The trail from the New Beach parking lot to the mouth of Tibbetts Creek is an informal muddy trail that is under water for some parts of the year when the lake level is high. This trail, which has an entry sign and appears to be fairly well used, leaves the park property and extends onto the adjacent Greenwood property. On the east side of Tibbetts Creek it goes along the lakeshore and through associated wetlands, which are dense and complex habitats in this area with large, old fallen willows and evidence of frequent beaver activity.

The use of this trail should be managed to limit impacts to the adjacent habitats. Boardwalk sections could be added to elevate the trail above the lake level, or trail sections could be moved to higher ground with an improved trail surface to prevent the on-going widening and creeping of the trail as users try to avoid mud and water. Willow stakes could be installed along the lake-shore, with more trees and shrubs at the mouth of the creek for improved habitat and increased shading to combat reed canarygrass. Hardstem bulrush could be planted along the lake edge to increase habitat diversity and the presence of native emergent plants. Buffer functions could



● Project location

Wetland function	Existing score	Proposed score
Flood/Storm Water Control	9	9
Base Flow/Ground Water Support	8	8
Erosion/Shoreline Protection	7	7
Water Quality Improvement	11	11
Natural Biological Support	23	25
Overall Habitat Functions	6	6
Specific Habitat Functions	12	12
Cultural/Socioeconomic	10	12

also be improved near the trail entry with planting of native conifers and shrubs. Interpretive signs along the trail could help to educate users about the value of the habitat and need to limit impacts to both the riparian and lakeshore environments. This project could be implemented by supervised volunteers under the guidance of a qualified trail builder.

Wetland and buffer functions can be characterized using the Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (Cooke Scientific Services, 2002). The table above shows scores for each function in the existing condition and predicted improvement based on proposed habitat enhancements. The worksheet for this assessment is included in Appendix B.

These enhancements have an estimated construction cost of \$92,250. The estimate worksheet can be found in Appendix C.



View of shoreline from existing trail



Wetland Enhancement and Interpretation

Wetland, Recreation ■  
(X,Y) 407051.592501, 62212.1091097 ■

Existing & Proposed Conditions:

Along the northeast side of the baseball fields is a grassy, muddy wetland area which is left unmaintained with the exception of a few mowed trails from the ballfields to the existing restroom. This area is approximately 0.9 acres in size. It is dominated by reed canarygrass with a few scattered shrubs and other weedy species.

This area could be improved and enhanced to increase wildlife habitat values, and to create an aesthetically pleasing and useful area for families attending baseball games. Additions could include a small shelter with tables, native shade trees and shrub clusters that would provide food and cover for wildlife. Shallow depressions could be created to support emergent wetland plants, combat invasive plants, and increase species diversity and edge habitat. Interpretive signage could be installed as an additional feature of the Tibbetts Creek Greenway restoration work.

Wetland and buffer functions can be characterized using the Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (Cooke Scientific Services, 2002). The attached



● Project location

Wetland function	Existing score	Proposed score
Flood/Storm Water Control	7	9
Base Flow/Ground Water Support	5	7
Erosion/Shoreline Protection	NA	NA
Water Quality Improvement	13	13
Natural Biological Support	13	22
Overall Habitat Functions	3	4
Specific Habitat Functions	5	9
Cultural/Socioeconomic	8	12

table shows scores for each function in the existing condition and predicted improvement based on proposed habitat enhancements. The worksheet for this assessment is included in Appendix B.



Reed canarygrass dominates the existing wetland

Interpretation of Issaquah Creek Dynamics

Stream, Recreation ■  
(X,Y) 407857.541225, 62834.7253319 ■

Existing & Proposed Conditions:

A fairly large bend in the stream at this project location was cut off from active flow when the stream eroded a “short cut,” bypassing the bend, some time about a decade ago. This “short cutting” of stream and river channels whereby the flow finds and takes a shorter route instead of its previous meandering, circuitous route is known as avulsion. The cut-off channel section which no longer carries active stream flow is called an oxbow. The area of the oxbow is presently very brushy, including dense Himalayan blackberry thickets, making it fairly inaccessible.

As envisioned, this project would include creating a side trail to the area off of the right bank (east side) trail system with well-developed interpretive signage (and possibly an interpretive center) explaining the processes of channel migration, meandering, and avulsion over time. Included would be the concept of a channel migration zone across the floodplain for streams and rivers and an explanation of the various and valuable habitat types that oxbows and side channels provide for a wide variety of wildlife species.



● Project location

This effort would include clearing of blackberry thickets and revegetation with native plantings to enhance the riparian corridor in this area. Benefits would include increased edge habitat, and food and cover opportunities for wildlife, as well as improved aesthetics.



Streambank along the oxbow



Issaquah Creek Footbridge

Stream, Recreation ■  
(X,Y) 408052.778434, 62614.4882361 ■

Existing & Proposed Conditions:

Centrally-located along the portion of Issaquah Creek on-site is a relatively straight and narrow channel section confined by dense black-berry thickets on both sides. This section, unlike the channel sections immediately upstream and downstream of it, shows little recent tendency to migrate and has relatively little bank erosion.

As such, it is likely that the best location for an additional footbridge crossing of Issaquah Creek would occur somewhere along this section. One area of interest is just downstream of a row of existing poplar trees. This location is fairly close to either alternative for a “creek play” area (projects C1 and C2), and is an opportunity for a relatively short-span bridge due to a fairly deep, stable stream channel with steep sides.



● Project location



Possible site for an additional footbridge